

STATE OF VERMONT
PUBLIC SERVICE BOARD

Docket No. 7032

Joint Petition of Vermont Electric Power Company, Inc. (“VELCO”), Green Mountain Power Corporation (“GMP”) and the Town of Stowe Electric Department (“Stowe”) for a Certificate of Public Good pursuant to 30 V.S.A. § 248 authorizing VELCO to upgrade a substation in Moretown, Vermont; construct .3 miles of side by side, single pole tap; construct a switching station in Duxbury, Vermont; construct 9.4 miles of 115 kV transmission line; upgrade an existing GMP 34.5 kV subtransmission line; construct a substation in Stowe, Vermont; and for Stowe to construct 1.05 miles of 34.5 kV subtransmission line in Stowe, Vermont.

PREFILED TESTIMONY OF
CAROLE E. WELCH

ON BEHALF OF THE
VERMONT DEPARTMENT OF PUBLIC SERVICE

April 11, 2005

Summary: The purpose of Ms. Welch's testimony is to discuss the results of her review of the Petitioners' analysis of energy conservation programs and measures and energy

efficiency and load management measures as an alternative or partial alternative to the proposed transmission upgrade.

Prefiled Testimony
of
Carole E. Welch

1 Q. Please state your name and occupation.

2 A. My name is Carole Welch. I am an Energy Policy & Program Analyst for the Vermont
3 Department of Public Service ("Department" or "DPS").

4 Q. Please summarize your professional background and experience.

5 A. I have been an Energy Policy & Program Analyst for the DPS for more than
6 twelve years. During that time, I have reviewed numerous utility requests for cost
7 recovery of demand side management (DSM) expenditures and ACE (Accounting
8 Correction for Efficiency) amounts in rate filings. I have been extensively involved in
9 negotiations to set the energy efficiency charge for the years 2000 - 2004 (Dockets
10 5980, 6429, 6564, 6741, and 6874). I conduct substantial review and evaluation of
11 Efficiency Vermont's accomplishments and activities. In the past, I reviewed the DSM
12 component of utility integrated resource plans submitted to the Vermont PSB for
13 approval. Prior to my employment with the DPS, I was an Area Energy Agent for the
14 University of Vermont (UVM) Extension Service. I have a BA in Mathematics from
15 UVM and have completed graduate level courses in natural resources planning at
16 UVM.

17 Q. Have you ever testified before the Vermont Public Service Board?

18 A. Yes, I have testified in Dockets 6860, 6750, 6120/6460, 6018, 5859, 5841/5859,
19 5863, 5809, 5701/5724, 5656, and a number of 5270 dockets.

1 Q. What is the purpose of your testimony?

2 A. The purpose of my testimony is to discuss the results of my review of the Petitioners'
3 analysis of energy conservation programs and measures and energy efficiency and load
4 management measures as an alternative or partial alternative to the proposed transmission
5 upgrade to meet the conditions of § 248(b)(2).

6 Q. Please summarize your testimony.

7 A. The Petitioners' analysis of the potential for DSM to defer or avoid the proposed
8 transmission upgrade proposed by the Petitioners in this docket is a rough calculation that is
9 flawed in some respects. However, these flaws do not result in an erroneous conclusion.
10 Given the need to acquire 34 MW immediately in order to negate the need for this project, I
11 agree there are insufficient cost-effective DSM resources available in the Lamoille County
12 Study Area (LCSA) to avoid the proposed transmission upgrade.

13 Q. Please summarize the Petitioners' analysis in support of its position that the need for this project
14 cannot be provided in a more cost-effective manner through energy conservation programs and
15 measures and energy-efficiency and load management measures, potential energy efficiency,
16 energy conservation, and load management measures.

17 A. The Petitioners' analysis of cost-effective DSM as an alternative to the proposed
18 transmission upgrade is an estimate of the available energy efficiency potential in the entire
19 Lamoille Loop Study Area. The analysis does not include an assessment of load management,
20 load response, or other non-efficiency DSM options as tools to lower peak demand. The
21 Petitioners limited consideration of load management and load control strategies to an
22 assumption in its load forecast that whatever load management and load response was being

1 acquired would continue to be acquired at the same rate.

2 I identified three primary concerns with the analysis conducted by the Petitioners:

- 3 1. The decision to conduct a very general estimate of the efficiency potential available
4 throughout the LCSA rather than focus on all potential DSM resources in the
5 constrained area defined for the establishment of the Lamoille County Loop DUP.
6 Target Area Specific Collaborative (“Lamoille Loop ASC”);
- 7 2. the lack of identification and analysis of the potential additional load management and
8 load response resources available in the entire LCSA or in the Lamoille Loop ASC
9 constrained area only; and
- 10 3. the methodology used to estimate the amount of winter coincident peak savings
11 potential available in the LCSA.

12 Q. Please describe your first concern listed above.

13 A. The efficiency potential calculation conducted by the Petitioners’ witness, David
14 Grimson, estimated the efficiency potential available in the entire LCSA as defined by VELCO
15 witness Kim Moulton, (p. 5, lines 9-15). However, the testimony of GMP witness Terry
16 Cecchini and discovery responses from GMP and Vermont Electric Cooperative (“VEC”) suggest that the load-driven needs for the project are contained primarily in a subset of the
17 electrical area defined by Ms. Moulton. In the Board order establishing the so-called Lamoille
18 County Loop DUP Target Area Specific Collaborative (“Lamoille Loop ASC”), the
19 constrained area is defined per the Docket 6290 Supplemental Agreement between GMP and
20 the VDPS as “the loads served from the substations connected to the 34.5 kV sub-transmission
21 system bounded by the VELCO Middlesex substation, the B22 breaker at the Morrisville No.
22

1 3 substation, and the Morrisville meter at Green River.”¹ This suggests the Petitioners’
2 alternatives analysis might better have focused on the GMP’s Waterbury area service territory,
3 the service territory of Town of Stowe Electric Department, and a portion of the service
4 territory of the Village of Morrisville Light and Water Department. It could have used the
5 scoping tool developed by the parties in the Docket 6290 DUP collaborative to look at what
6 an accelerated implementation of aggressive energy efficiency measures could do in the
7 constrained area. Additional analysis of the load management, load response, and efficiency
8 opportunities to reduce and control loads from the area’s largest customers would have been
9 useful. While a more detailed analysis would not have altered the result for this project, the
10 Petitioners’s analysis probably would not be sufficient for projects where the load-related need
11 is not as great.

12 Q. Please discuss the Petitioners situation with respect to your second concern involving load
13 management and load response.

14 A. The Petitioners state that, in the Stowe and GMP service territories located in the
15 Lamoille Loop ASC constrained area, a total of 2 MW of load was curtailed during the actual
16 peak load in the LCSA that occurred on December 20, 2004.² In addition, there is an amount
17 of load being at least somewhat managed through the use of utility controlled electric water
18 heaters (GMP) and rate designs that provide an incentive for customers to reduce billing
19 demand, such as the residential demand rate implemented by Stowe Electric. GMP states it

¹ Docket 6290 “Supplemental Agreement between Green Mountain Power Corporation
and the Vermont Department of Public Service Regarding the Lamoille County Loop DUP Target
Area, paragraph 2.

² Petitioners Response to DPS9-16c.

1 has 106 controlled electric water heater accounts in its Waterbury-Duxbury service territory.
2 Assuming a 40% electric water heater penetration for the residential customers in the GMP
3 portion of the constrained area suggests there may be an additional 1,000 electric water heaters
4 that could be controlled³.

5 Stowe and Morrisville tariffs include a mandatory demand rate for residential customers
6 who use at least 2,000 kWh's per month for two consecutive winter season months. Stowe
7 reports 130 customers are currently served under this rate and two customers are served under
8 a residential storage heating tariff. Morrisville reports four customers served under its
9 residential demand tariff. However, little work has been done by the Petitioners or affected
10 utilities to assess the potential for load management of existing load or implementation of an
11 accelerated, aggressive electric space heat and water heating fuel switch program.

12 Q. Finally, please discuss the methodology used by the Petitioners to assess the potential amount
13 of cost-effective energy efficiency available that might delay or avoid the proposed transmission
14 upgrade.

15 A. The analysis, conducted by VELCO witness Dave Grimason under contract with
16 GMP for the ASC (Docket 6799), uses the results of the Public Service Department's "Electric
17 and Economic Impacts of Maximum Achievable Statewide Efficiency Savings" study prepared
18 by Optimal Energy, Inc. ("OEI") filed with the PSB on May 29, 2002 and revised January 31,
19 2003 and an analysis done for VELCO in preparation for its NRP docket filing to estimate the
20 coincident winter peak energy efficiency potential for the entire Lamoille County Study Area

³ GMP states it has 3,221 customers in the area effected by the proposed transmission upgrade.

1 (“LCSA”). Mr. Grimason estimated the amount of winter coincident peak capacity potentially
2 available by subtracting an amount of statewide summer coincident peak capacity anticipated
3 from the EEU program efforts of EVT & BED from an amount of statewide winter peak
4 capacity estimated in the DPS study of efficiency potential. This result, expressed as an annual
5 percentage reduction to load, was then applied to the Petitioners annual load forecast amounts.
6 The results of Mr. Grimason’s calculations are shown in Table 2 of his exhibit VELCO -DWG-
7 2.

8 The analysis should have used winter coincident peak savings data to estimate the
9 remaining winter coincident peak efficiency potential. However, the result from Mr.
10 Grimason’s method, that EVT efforts are acquiring 0.6% of winter coincident peak savings
11 annually, is reasonable. Statewide, EVT and BED together reported winter coincident peak
12 savings of nearly 7 MW annually for 2002 and 2003, for a savings of about 0.7% . For 2003,
13 EVT reports acquiring 127 winter coincident peak kW in Stowe’s service territory,
14 representing a 0.87% annual reduction, and 60 kW of winter coincident peak demand acquired
15 in Morrisville’s service territory, for a 0.74% of Morrisville’s winter peak load. The preliminary
16 results contained in EVT’s 2004 Preliminary Annual Report of April 1, 2005 show comparable
17 results.

18 Q. With these deficiencies, why do you believe they are not fatal flaws?

19 A. The Petitioners state, and DPS witness George Smith agrees, that for acceptable
20 reliability, the acceptable load for the existing LCSA system is 40 MW. Current load for the
21 LCSA is nearly 74 MW and growing. To keep the load below 40 MW, some load would
22 have to be removed for up to 6,000 hours a year and during peak, 34 MW of load would have
23 to be curtailed or removed immediately to avoid this project. It is clear that aggressive DSM
24 resource acquisition is unlikely to result in the immediate acquisition of 34 MW of winter

1 coincident peak load savings.

2 Q. Does this conclude your testimony?

3 A. Yes, at this time.